

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 35

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte PHILIP O. JARVINEN

Appeal No. 2000-0803
Application 05/333,233

ON BRIEF

Before COHEN, ABRAMS and STAAB, Administrative Patent Judges.

STAAB, Administrative Patent Judge.

This is a decision in an appeal from the examiner's final rejection of claims 1-16, all the claims pending in the application.

By way of background, this case has been pending since 1973, with the examiner's answer (Paper No. 13) having been entered in 1975. Since then, the application has been subject to a secrecy order, which has only recently been rescinded.

As explained on page 1 of the specification, an object of appellant's invention is "to provide a shaped beam of infrared radiation from a combustion heated honeycomb mantle in combination with a reflector." To this end, the invention includes an infrared radiation source comprising a honeycomb mantle which is closed at one end and heated with combustion gases applied to the other end, and a diverter disposed on the closed end of the mantle to divert the combustion gases and, thus, provide uniform heating of the mantle (specification, page 1, line 25, through page 2, line 4).

Claim 1, the sole independent claim on appeal, is representative of the appealed subject matter and reads as follows:

1. A combustion heated honeycomb mantle infrared radiation source comprising:

a combustion heated mantle formed of a material which when heated emits radiant energy, said mantle including walls of a honeycomb structure with the axis of symmetry of the holes of said honeycomb walls being disposed at an angle of less than 180° with respect to the longitudinal axis of said mantle, said mantle being open at one end and closed at the other end;

a diverter disposed at the closed end of said mantle; and

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means for heating said mantle with combustion gases.

The references of record relied upon by the examiner in support of rejections under 35 U.S.C. § 103 are:

Hess	2,287,246	Jun. 23, 1942
Thompson	2,336,816	Dec. 14, 1943
Kunins	2,761,959	Sep. 04, 1956
Smith	3,088,271	May 07, 1963
Schade, Jr. (Schade)	3,291,189	Dec. 13, 1966
Hailstone et al. (Hailstone)	3,324,924	Jun. 13, 1967
Bryan	3,364,914	Jan. 23, 1968
Strauss	3,516,772	Jun. 23, 1970

The following rejections under 35 U.S.C. § 103 are before us for review:

(1) claims 1, 4, 6-9 and 11-14, unpatentable over Thompson or Schade in view of Hailstone and Bryan;

(2) claim 5, unpatentable over Thompson or Schade in view of Hailstone and Bryan, and further in view of Smith;

(3) claim 10, unpatentable over Thompson or Schade in view of Hailstone and Bryan, and further in view of Hess;

(4) claim 15, unpatentable over Thompson or Schade in view of Hailstone and Bryan, and further in view of Strauss;
and,

(5) claim 16, unpatentable over Thompson or Schade in view of Hailstone and Bryan, and further in view of Kunins.

Thompson, one of the examiner's primary references, pertains to "room or space heaters of the type employing a heat reflecting bowl and a radiant unit which is caused to glow as a result of combustion of natural or artificial gas" (page 1, left hand column, lines 1-4). The radiant unit comprises a tubular radiant B heated by combustion of air and gas. Radiant B "will become incandescent and its heat will be radiated and projected by the reflector 3 to heat the room or other space in which the heater is installed" (page 2, left hand column, lines 41-44). Radiant B is made of wire mesh or wire gauze (page 2, left hand column, lines 24-29).

Schade, the other of the examiner's primary references, is directed to a gas burner 10 comprising a burner head 24 having a honeycomb or gridwork structure 40 through which air and gas fuel pass for combustion at the outlet end 44 of ports 42 (column 2, lines 30-42), a heat absorbing and dissipating element 26, and a converter 8 "which is the 'load' of the burner 10, [and which] comprises a cylindrical tubular member 12 closed at each end by insulating discs 18 and 20" (column 2, lines 3-5). Schade explains that the purpose of element 26 is to extract the heat energy from the burner flame in a small

space and to transfer the heat by radiation to the burner load (column 3, lines 57-60). Schade further explains that heat absorbing and dissipating element 26 "may be a foraminous member, an open-ended, solid wall cylinder, or the like, to permit exhausting of the products of combustion" (column 3, lines 72 through column 4, line 3). Schade also describes the wall of heat absorbing and dissipating element 26 as being "formed from one or more layers of metal screens having meshes in the order of 40 to 200 meshes per inch" (column 4, lines 21-23).

Hailstone pertains to a radiant heater device having a honeycomb-shaped refractory structure 6. As explained at column 3, lines 34-36, combustion takes place in regions 7 near the base of each cell of the honeycomb structure which is in contact with a hole 5 of the injector plate 4.

Bryan discloses a gas fired infrared apparatus capable of generating heat and/or light energy (column 1, lines 13-17). Bryan's apparatus comprises a radiant unit 36 supported within a reflector 56, and means for supplying air and gas to the apparatus. More particularly, the radiant unit includes a cone shaped perforated radiant 44, a sleeve type gas mantle 58

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to produce visible light, a reradiator sleeve 48 surrounding the radiant 44 and mantle 58, and a conical reradiator cover 50 mounted at the upper end of the reradiator sleeve. In operation, a air-gas mixture passes through the perforations of the radiant 44 and burns in combustion zone 54, whereupon the conical shape of the radiant 44 aids in uniformly distributing heat to the

reradiator components 48 and 50 (column 3, lines 43-50). The principle function of the reradiator

is to provide a large surface at a uniform high temperature, resulting in the conversion of a large percentage of the heat of combustion to radiant energy, primarily in the 1-12 μ range of wave lengths. In operation, the entire surface of the reradiator is heated to incandescence and may reach a temperature several hundreds degrees above that of the radiant. [Column 3, lines 51-57.]

A portion of the air-gas mixture flows into the interior of the

mantle 58 where it burns and heats the mantle.

The mantle is thereby heated to a temperature at which it emits white light consisting primarily of radiant energy having a wave length in the range of 0.4 to 0.7 micron. The white light radiates through the apertures in radiators 48 and 50 and is concentrated and projected in the desired direction by reflector 56 in the form of a beam of intense white light. [Column 4, lines 55-61.]

Looking first at the examiner's rejection of claim 1, the essence of the rejection is the examiner's determination that it would have been obvious to employ (1) a mantle of honeycomb construction in either Thompson or Schade in view of Hailstone, and (2) a diverter such as element 50 of Bryan in either Thompson or Schade.

Appellant does not specifically dispute the examiner's

conclusion as to (1). We therefore will accept the examiner's position in this regard. However, appellant does take issue with the examiner as to (2). In particular, appellant argues on pages 6 and 7 of the brief that the examiner is in error in considering the conically shaped reradiator 50 of Bryan as being the equivalent of the claimed diverter. According to appellant, Bryan's inverted conically shaped reradiator 50 could not act as a diverter because gases impinging thereon would flow through the holes therein and out from the unit itself rather than being diverted.

From our perspective, the examiner's implicit finding that the conically shaped reradiator 50 of Bryan will act as a diverter to divert the combustion gases and promote uniform heating of the mantle is based on supposition and conjecture. In this regard, the examiner's position (answer, page 4) that at least some of the gases would be deflected by Bryan's reradiator component 50 is not sufficient in light of the presence of the large number of holes in component 50 that would appear to allow a significant portion of the gases impinging thereon to flow through the holes and out the end of the unit. Without a clear and supportable factual finding

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that Bryan's conically shaped reradiator 50 acts to divert
gases to reradiator sleeve 48 in a meaningful way, the
rejection is not sustainable. This

constitutes a first reason necessitating reversal of the examiner's rejection of claim 1.

With respect to the examiner's proposed modification of Thompson in view of Bryan, even if a conically shaped component such as element 50 of Bryan were to be incorporated into Thompson's device, the ensuing device would not respond to the requirement of claim 1 that the mantle have a closed end. This is so because, in our opinion, the apertures in Bryan's component 50 would permit gases to flow therethrough and thus not "close" the end of the mantle. This constitutes an additional reason necessitating reversal of the examiner's rejection of claim 1 to the extent it is based on Thompson as the starting point of the rejection.

Concerning the examiner's proposed modification of Schade in view of Bryan, it appears to us that the cap at the upper end of Schade's heat absorbing and dissipating element 26 would need to be retained upon incorporating a conically shaped component such as element 50 of Bryan therein in order to meet the claim limitation calling for a mantle having a closed end. However, it is not clear why the ordinarily skilled artisan would do this if the incorporated conically

shaped component were considered by the artisan to be a diverter, as proposed by the examiner. Where prior art references require a selective combination to render obvious a claimed invention, there must be some reason for the combination other than hindsight gleaned from the invention disclosure, *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1143, 227 USPQ 543, 551 (Fed. Cir. 1985). In the fact situation before us, it is not apparent to us, and the examiner has not adequately explained, why one of ordinary skill in the art would have been motivated by the combined teachings of Schade and Bryan to retain the end cap of Schade's element 26 upon incorporation of a conically shaped component such as element 50 of Bryan therein. This constitutes an additional reason necessitating reversal of the examiner's rejection of claim 1 to the extent it is based on Schade as the starting point of the rejection.

For the above reasons, we will not sustain the examiner's rejection of claim 1, or claims 4, 6-9 and 11-14 that depend therefrom, as being unpatentable over Thompson or Schade in view of Hailstone and Bryan.

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Considering the examiner's rejection of claim 5 further in view of Smith, claim 10 further in view of Hess, claim 15 further in view of Strauss, and claim 16 further in view of Kunins, we have carefully reviewed each of these additional references but find nothing therein that makes up for the deficiencies of Thompson, Schade, Hailstone and Bryan discussed above. Therefore, we also will not sustain the examiner's rejections of these claims under § 103.

The decision of the examiner is reversed.

REVERSED

IRWIN CHARLES COHEN
Administrative Patent Judge

NEAL E. ABRAMS
Administrative Patent Judge

LAWRENCE J. STAAB
Administrative Patent Judge

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